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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

ROE, JESSEE RANDALL

ART UNIT

PAPER NUMBER

1793

NOTIFICATION DATE

DELIVERY MODE

01/07/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/593,338	Applicant(s) ODA ET AL.	
	Examiner JESSEE ROE	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5,7-9,11-14,17,18 and 21-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5, 7-9, 11-14, 17-18 and 21-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of the Claims

Claims 5, 7-9, 11-14, 17-18 and 21-30 are pending wherein claims 5 and 7 are amended, claims 27-30 are new and claims 1-4, 6, 10, 15-16 and 19-20 are canceled.

Status of Previous Rejections/

Response to Declaration Under 37 CFR §1.132

The previous rejection of claims 5, 7 and 11-12 under 35 U.S.C. 103(a) as being unpatentable over Nishi et al. (US 4,919,736) is withdrawn in view of the Applicant's amendments to claims 5 and 7. The Declaration under 37 CFR 1.132 filed 26 October 2009 is insufficient to overcome the rejection of claims 5, 7-9 and 11-26 based upon Horikawa et al. (JP 2000-204428A) as set forth in the last Office action because the differences in the numerical data provided for "Poor", "Good", and "Excellent" provided are not significant, unexpected and of statistical distinction in accordance with MPEP 716.02(b). However, Applicant's arguments regarding the exclusion of magnesium due to the transitional language "consisting of" are persuasive. Therefore, the rejection of claims 5, 7-9 and 11-26 under 35 U.S.C. 103(a) as being unpatentable over Horikawa et al. (JP 2000-204428A) is withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 7-8, 21, 23-25 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulder (US 5,066,323).

In regards to claim 5, Mulder ('323) discloses aluminum alloys having compositions relative to that of the instant invention as shown in the table below (col. 2, lines 17-27 and col. 2, lines 34 – 48).

Element	From Instant Claims (mass percent)	Mulder ('323) (mass percent)	Overlap
Si	13 – 25	11 – 30 (16 – 26)	13 – 25 (16 – 25)
Cu	2 – 8	0 – 6	2 – 6
Fe	0.5 – 3	0 – 3	0.5 – 3
Mn	1 – 3	0 – 1	1
P	0.001 – 0.02	0.002 – 0.05	0.002 – 0.02
Ni	1 – 6	0 – 3	1 – 3
Al	Balance	Balance	Balance

The Examiner notes that the aluminum alloy composition disclosed by Mulder ('323) overlaps the composition of the instant invention, which is prima facie evidence of obviousness. MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed amounts of silicon, copper, iron, manganese, phosphorus, and nickel for an aluminum alloy from the amounts disclosed by Mulder ('323) because Mulder ('323) discloses the same utility throughout the disclosed ranges.

With respect to the recitation “wherein the total amount of the combination of iron, manganese, and nickel is 3.0% by mass or greater” as in lines 4-5 of claim 5, it is

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well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, *In re Cooper and Foley* 1943 C.D. 357, 553 O.G. 177., 57 USPQ 117, *Saklatwalla v. Marburg*, 620 O.G. 685, 1949 C.D. 77, and *In re Pilling*, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In the absence of evidence to the contrary, the selection of the proportions of iron, manganese, and nickel would appear to require no more than routine investigation by those of ordinary skill in the art. *In re Austin, et al.*, 149 USPQ 685,688. It would have been obvious to one of ordinary skill in the art to select the claimed ranges of iron, manganese, and nickel from the aluminum alloys disclosed by Mulder ('323) because Mulder ('323) teaches the same utility throughout the disclosed ranges.

With respect to the recitation "said aluminum alloy having a Young's modulus of 90 GPa or more and a coefficient of linear thermal expansion of $18 \times 10^{-6}/^{\circ}\text{C}$ or less" as recited in lines 5-8 of claim 5, the Examiner notes that the composition disclosed by Mulder ('323) would be the same or substantially similar to that of the instant invention. Therefore, these properties would be expected. MPEP 2112.01 I.

In regards to claim 23, Mulder ('323) discloses 0 to 3 mass percent nickel, which overlaps the claimed range of 3 to 6 mass percent nickel.

With respect to the recitation "said aluminum alloy has a Young's modulus of 92 GPa or more" in claim 27, the Examiner notes that the composition disclosed by Mulder ('323) would be the same or substantially similar to that of the instant invention. Therefore, this property would be expected. MPEP 2112.01 I.

In regards to claim 7, Mulder ('323) discloses aluminum alloys having

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compositions relative to that of the instant invention as shown in the table on the following page (col. 2, lines 17-27 and col. 2, lines 34 – 48).

Element	From Instant Claims (mass percent)	Mulder ('323) (mass percent)	Overlap
Si	13 – 25	11 – 30 (16 – 26)	13 – 25 (16 – 25)
Cu	2 – 8	0 – 6	2 – 6
Fe	0.5 – 3	0 – 3	0.5 – 3
Mn	1 – 3	0 – 1	1
P	0.001 – 0.02	0.002 – 0.05	0.002 – 0.02
Ni	1 – 6	0 – 3	1 – 3
Cr	0.1 – 1	0 – 1	0.1 – 1
Al	Balance	Balance	Balance

The Examiner notes that the aluminum alloy composition disclosed by Mulder ('323) overlaps the composition of the instant invention, which is prima facie evidence of obviousness. MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed amounts of silicon, copper, iron, manganese, phosphorus, nickel and chromium for an aluminum alloy from the amounts disclosed by Mulder ('323) because Mulder ('323) discloses the same utility throughout the disclosed ranges.

With respect to the recitation “wherein the total amount of the combination of Iron and manganese is 3.0% by mass or greater” as in lines 7-8 of claim 7, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, *In re Cooper and Foley* 1943 C.D. 357, 553 O.G. 177., 57 USPQ 117, *Saklatwalla v. Marburg*, 620 O.G. 685, 1949 C.D. 77, and *In re Pilling*, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In the absence of evidence to the contrary, the selection of the proportions of iron, manganese, and nickel would appear

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to require no more than routine investigation by those of ordinary skill in the art. In re Austin, et al., 149 USPQ 685,688. It would have been obvious to one of ordinary skill in the art to select the claimed ranges of iron, manganese, and nickel from the aluminum alloys disclosed by Mulder ('323) because Mulder ('323) teaches the same utility throughout the disclosed ranges.

With respect to the recitation "said aluminum alloy having a Young's modulus of 90 GPa or more and a coefficient of linear thermal expansion of $18 \times 10^{-6}/^{\circ}\text{C}$ or less" as recited in lines 8-9 of claim 7, the Examiner notes that the composition disclosed by Mulder ('323) would be the same or substantially similar to that of the instant invention. Therefore, these properties would be expected. MPEP 2112.01 I.

In regards to claim 24, Mulder ('323) discloses 0 to 3 mass percent nickel, which overlaps the claimed range of 3 to 6 mass percent nickel.

With respect to the recitation "said aluminum alloy has a Young's modulus of 92 GPa or more" in claim 28, the Examiner notes that the composition disclosed by Mulder ('323) would be the same or substantially similar to that of the instant invention. Therefore, this property would be expected. MPEP 2112.01 I.

In regards to claim 8, Mulder ('323) discloses aluminum alloys having compositions relative to that of the instant invention as shown in the table below (col. 2, lines 17-27 and col. 2, lines 34 – 48).

Element	From Instant Claims (mass percent)	Mulder ('323) (mass percent)	Overlap
Si	13 – 25	11 – 30 (16 – 26)	13 – 25 (16 – 25)
Cu	2 – 8	0 – 6	2 – 6
Fe	0.5 – 3	0 – 3	0.5 – 3
Mn	1 – 3	0 – 1	1

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P	0.001 – 0.02	0.002 – 0.05	0.002 – 0.02
Ni	0.5 – 6	0 – 3	0.5 – 3
Cr	0.1 – 1	0 – 1	0.1 – 1
Al	Balance	Balance	Balance

The Examiner notes that the aluminum alloy composition disclosed by Mulder ('323) overlaps the composition of the instant invention, which is prima facie evidence of obviousness. MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed amounts of silicon, copper, iron, manganese, phosphorus, nickel and chromium for an aluminum alloy from the amounts disclosed by Mulder ('323) because Mulder ('323) discloses the same utility throughout the disclosed ranges.

With respect to the recitation "wherein the total amount of the combination of iron, manganese, and nickel is 3.0% by mass or greater" as in lines 4-5 of claim 8, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, *In re Cooper and Foley* 1943 C.D. 357, 553 O.G. 177., 57 USPQ 117, *Saklatwalla v. Marburg*, 620 O.G. 685, 1949 C.D. 77, and *In re Pilling*, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In the absence of evidence to the contrary, the selection of the proportions of iron, manganese, and nickel would appear to require no more than routine investigation by those of ordinary skill in the art. *In re Austin, et al.*, 149 USPQ 685,688. It would have been obvious to one of ordinary skill in the art to select the claimed ranges of iron, manganese, and nickel from the aluminum alloys disclosed by Mulder ('323) because Mulder ('323) teaches the same utility throughout the disclosed ranges.

With respect to the recitation "said aluminum alloy having a Young's modulus of 90 GPa or more and a coefficient of linear thermal expansion of $18 \times 10^{-6}/^{\circ}\text{C}$ or less" as recited in lines 5-8 of claim 8, the Examiner notes that the composition disclosed by Mulder ('323) would be the same or substantially similar to that of the instant invention. Therefore, these properties would be expected. MPEP 2112.01 I.

In regards to claims 21 and 25, Mulder ('323) discloses 0 to 3 mass percent nickel, which overlaps the claimed ranges of 1 to 6 mass percent nickel and 3 to 6 mass percent nickel.

With respect to the recitation "said aluminum alloy has a Young's modulus of 92 GPa or more" in claim 29, the Examiner notes that the composition disclosed by Mulder ('323) would be the same or substantially similar to that of the instant invention. Therefore, this property would be expected. MPEP 2112.01 I.

Claims 9, 22, 26 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulder (US 5,066,323) in view of the ASM Handbook Volume 2 (page 55, cols. 2-3).

In regards to claim 9, Mulder ('323) discloses aluminum alloys having compositions relative to that of the instant invention as shown in the table below (col. 2, lines 17-27 and col. 2, lines 34 – 48).

Element	From Instant Claims (mass percent)	Mulder ('323) (mass percent)	Overlap
Si	13 – 25	11 – 30 (16 – 26)	13 – 25 (16 – 25)
Cu	2 – 8	0 – 6	2 – 6
Fe	0.5 – 3	0 – 3	0.5 – 3
Mn	1 – 3	0 – 1	1
P	0.001 – 0.02	0.002 – 0.05	0.002 – 0.02

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Ni	0.5 – 6	0 – 3	0.5 – 3
Cr	0.1 – 1	0 – 1	0.1 – 1
Al	Balance	Balance	Balance

The Examiner notes that the aluminum alloy composition disclosed by Mulder ('323) overlaps the composition of the instant invention, which is prima facie evidence of obviousness. MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed amounts of silicon, copper, iron, manganese, phosphorus, nickel and chromium for an aluminum alloy from the amounts disclosed by Mulder ('323) because Mulder ('323) discloses the same utility throughout the disclosed ranges.

Still regarding claim 9, Mulder ('323) teaches that structural refinement is an important feature in aluminum alloys, but Mulder ('323) does not specify the presence of titanium in the alloy.

The ASM Handbook Volume 2 teaches that the addition of 10 ppm to 100 ppm (0.001 to 0.01 weight percent titanium) with boron in the form of soluble TiB_2 would provide an enhanced grain refining effect (page 55, cols. 2-3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add 10 ppm to 100 ppm (0.001 to 0.01 weight percent titanium) with boron in the form of soluble TiB_2 , as disclosed by the ASM Handbook Volume 2, to the aluminum alloy, as disclosed by Mulder ('323), in order to provide an enhanced grain refining effect, as disclosed by the ASM Handbook Volume 2 (page 55, cols. 2-3).

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With respect to the recitation “wherein the amount of nickel is 1-6% by mass” in claim 22, Mulder ('323) discloses 0 to 3 mass percent nickel, which overlaps the instantly claimed range of 1 to 6 mass percent (col. 2, lines 17-27 and col. 2, lines 34 – 48).

With respect to the recitation “wherein the amount of nickel is 3-6% by mass” in claim 26, Mulder ('323) discloses 0 to 3 mass percent nickel, which overlaps the instantly claimed range of 3 to 6 mass percent (col. 2, lines 17-27 and col. 2, lines 34 – 48).

With respect to the recitation “said aluminum alloy has a Young's modulus of 92 GPa or more” in claim 30, the Examiner notes that the composition disclosed by Mulder ('323) would be the same or substantially similar to that of the instant invention. Therefore, this property would be expected. MPEP 2112.01 I.

Claims 5, 7-9, 11-14, 17-18 and 21-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lawrence et al. (US 3,325,279).

In regards to claim 5 and 7-9, Lawrence et al. ('279) discloses an aluminum-silicon alloy having about 26 to 45 mass percent, less than about 0.005 mass percent phosphorus and “not more than 10 percent by mass of a modifying metal addition selected from the group consisting of magnesium, copper, manganese, nickel, chromium, titanium, iron, and compatible combinations thereof”.

Still regarding claim 5, the Examiner notes that the sum of the claimed contents of copper, iron, manganese, and nickel is a range of 4.5 to 20 mass percent and therefore “not more than 10 percent by mass of a modifying metal addition selected

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from the group consisting of magnesium, copper, manganese, nickel, chromium, titanium, iron, and compatible combinations thereof” as disclosed by Lawrence et al. ('279) would overlap in scope with the instant invention (claims 1, 6 and 7).

The Examiner notes that the aluminum alloy composition disclosed by Lawrence et al. ('279) overlaps the composition of the instant invention, which is prima facie evidence of obviousness. MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed amounts of silicon, phosphorus, copper, manganese, nickel, chromium, titanium, and iron for an aluminum alloy from the amounts disclosed by Lawrence et al. ('279) because Lawrence et al. ('279) discloses the same utility throughout the disclosed ranges.

With respect to the recitation “wherein the total amount of the combination of iron, manganese, and nickel is 3.0% by mass or greater” as in lines 4-5 of claim 5, lines 7-8 of claim 7, lines 4-5 of claim 8, and lines 6-7 of claim 9, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, *In re Cooper and Foley* 1943 C.D. 357, 553 O.G. 177., 57 USPQ 117, *Sakalatwalla v. Marburg*, 620 O.G. 685, 1949 C.D. 77, and *In re Pilling*, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In the absence of evidence to the contrary, the selection of the proportions of iron, manganese, and nickel would appear to require no more than routine investigation by those of ordinary skill in the art. *In re Austin, et al.*, 149 USPQ 685, 688. It would have been obvious to one of ordinary skill in the art to select the claimed ranges of iron, manganese, and nickel from the aluminum alloys disclosed by Lawrence et al. ('279) because Lawrence et al. ('279) teaches the same utility

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throughout the disclosed ranges.

With respect to the recitation "said aluminum alloy having a Young's modulus of 90 GPa or more and a coefficient of linear thermal expansion of $18 \times 10^{-6}/^{\circ}\text{C}$ or less" as recited in lines 5-8 of claim 5, lines 8-9 of claim 7, lines 5-8 of claim 8, and lines 7-9 of claim 9, the Examiner notes that the composition disclosed by Lawrence et al. ('279) would be the same or substantially similar to that of the instant invention. Therefore, these properties would be expected. MPEP 2112.01 I.

With respect to the recitations "wherein the amount of manganese is 1.2-3% by mass" in claims 11-14, "wherein the amount of manganese is 1.2-3% by mass and the amount of nickel is 1-6% by mass" in claims 17-18, "wherein the amount of nickel is 1-6% by mass" in claims 21-22, and "wherein the amount of nickel is 3-6% by mass" in claims 23-26", Lawrence et al. ('279) discloses not more than 10 mass percent of manganese and nickel (claims 1, 6 and 7).

With respect to the recitation "said aluminum alloy has a Young's modulus of 92 GPa or more" in claims 27-30, the Examiner notes that the composition disclosed by Lawrence et al. ('279) would be the same or substantially similar to that of the instant invention. Therefore, this property would be expected. MPEP 2112.01 I.

Claims 5, 7, 11-12, 23-24 and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kami et al. (JP 03-199336).

In regards to claim 5, Kami et al. (JP '336) discloses aluminum alloys having compositions relative to that of the instant invention as shown in the table on the following page (page 2, claim 2).

Element	From Instant Claims (mass percent)	Kami et al. (JP '336) (mass percent)	Overlap
Si	13 – 25	13 – 18	13 - 18
Cu	2 – 8	1 – 7	2 – 7
Fe	0.5 – 3	0 – 1.5	0.5 – 1.5
Mn	1 – 3	0.2 – 1.5	1 – 1.5
P	0.001 – 0.02	0.001 – 0.2	0.001 – 0.02
Ni	1 – 6	3 – 7	3 – 6
Al	Balance	Balance	Balance

The Examiner notes that the aluminum alloy composition disclosed by Kami et al. (JP '336) overlaps the composition of the instant invention, which is prima facie evidence of obviousness. MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed amounts of silicon, copper, iron, manganese, phosphorus, and nickel for an aluminum alloy from the amounts disclosed by Kami et al. (JP '336) because Kami et al. (JP '336) discloses the same utility throughout the disclosed ranges.

With respect to the recitation “wherein the total amount of the combination of iron, manganese, and nickel is 3.0% by mass or greater” as in lines 4-5 of claim 5, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, *In re Cooper and Foley* 1943 C.D. 357, 553 O.G. 177., 57 USPQ 117, *Saklatwalla v. Marburg*, 620 O.G. 685, 1949 C.D. 77, and *In re Pilling*, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In the absence of evidence to the contrary, the selection of the proportions of iron, manganese, and nickel would appear to require no more than routine investigation by those of ordinary skill in the art. *In re Austin, et al.*, 149 USPQ 685,688. It would have been obvious to one of ordinary skill in

the art to select the claimed ranges of iron, manganese, and nickel from the aluminum alloys disclosed by Kami et al. (JP '336) because Kami et al. (JP '336) teaches the same utility throughout the disclosed ranges.

With respect to the recitation "said aluminum alloy having a Young's modulus of 90 GPa or more and a coefficient of linear thermal expansion of $18 \times 10^{-6}/^{\circ}\text{C}$ or less" as recited in lines 5-8 of claim 5, the Examiner notes that the composition disclosed by Kami et al. (JP '336) would be the same or substantially similar to that of the instant invention. Therefore, these properties would be expected. MPEP 2112.01 I.

With respect to the recitation "wherein the amount of manganese is 1.2-3% by mass" in claim 11, Kami et al. (JP '336) discloses 0.2 to 1.5 mass percent manganese, which overlaps claimed range of 1.2 to 3 mass percent (page 2, claim 2).

With respect to the recitation "wherein the amount of nickel is 3-6% by mass" in claim 23, Kami et al. (JP '336) discloses 3 to 7 mass percent nickel, which encompasses the instantly claimed range of 3 to 6 mass percent (page 2, claim 2).

With respect to the recitation "said aluminum alloy has a Young's modulus of 92 GPa or more" in claim 27, the Examiner notes that the composition disclosed by Kami et al. (JP '336) would be the same or substantially similar to that of the instant invention. Therefore, this property would be expected. MPEP 2112.01 I.

In regards to claim 7, Kami et al. (JP '336) discloses aluminum alloys having compositions relative to that of the instant invention as shown in the table on the following page (page 2, claim 2).

Element	From Instant Claims (mass percent)	Kami et al. (JP '336) (mass percent)	Overlap
Si	13 – 25	13 – 18	13 – 18
Cu	2 – 8	1 – 7	2 – 7
Fe	0.5 – 3	0 – 1.5	0.5 – 1.5
Mn	1 – 3	0.2 – 1.5	1 – 1.5
P	0.001 – 0.02	0.001 – 0.2	0.001 – 0.02
Ni	1 – 6	3 – 7	3 – 6
Ti	0.01 – 1	0.001– 0.3	0.01 – 0.3
Al	Balance	Balance	Balance

The Examiner notes that the aluminum alloy composition disclosed by Kami et al. (JP '336) overlaps the composition of the instant invention, which is prima facie evidence of obviousness. MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed amounts of silicon, copper, iron, manganese, phosphorus, nickel and titanium for an aluminum alloy from the amounts disclosed by Kami et al. (JP '336) because Kami et al. (JP '336) discloses the same utility throughout the disclosed ranges.

With respect to the recitation “wherein the total amount of the combination of Iron and manganese is 3.0% by mass or greater” as in lines 7-8 of claim 7, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, *In re Cooper and Foley* 1943 C.D. 357, 553 O.G. 177., 57 USPQ 117, *Sakalattwalla v. Marburg*, 620 O.G. 685, 1949 C.D. 77, and *In re Pilling*, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In the absence of evidence to the contrary, the selection of the proportions of iron, manganese, and nickel would appear to require no more than routine investigation by those of ordinary skill in the art. *In re Austin, et al.*, 149 USPQ 685, 688. It would have been obvious to one of ordinary skill in

the art to select the claimed ranges of iron, manganese, and nickel from the aluminum alloys disclosed by Kami et al. (JP '336) because Kami et al. (JP '336) teaches the same utility throughout the disclosed ranges.

With respect to the recitation "said aluminum alloy having a Young's modulus of 90 GPa or more and a coefficient of linear thermal expansion of $18 \times 10^{-6}/^{\circ}\text{C}$ or less" as recited in lines 8-9 of claim 7, the Examiner notes that the composition disclosed by Kami et al. (JP '336) would be the same or substantially similar to that of the instant invention. Therefore, these properties would be expected. MPEP 2112.01 I.

With respect to the recitation "wherein the amount of manganese is 1.2-3% by mass" in claim 12, Kami et al. (JP '336) discloses 0.2 to 1.5 mass percent manganese, which overlaps claimed range of 1.2 to 3 mass percent (page 2, claim 2).

With respect to the recitation "wherein the amount of nickel is 3-6% by mass" in claim 24, Kami et al. (JP '336) discloses 3 to 7 mass percent nickel, which encompasses the instantly claimed range of 3 to 6 mass percent (page 2, claim 2).

With respect to the recitation "said aluminum alloy has a Young's modulus of 92 GPa or more" in claim 28, the Examiner notes that the composition disclosed by Kami et al. (JP '336) would be the same or substantially similar to that of the instant invention. Therefore, this property would be expected. MPEP 2112.01 I.

Response to Arguments

Applicant's arguments with respect to claims 5, 7-9, 11-14, 17-18 and 21-30 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessee Roe whose telephone number is (571) 272-5938. The examiner can normally be reached on Monday-Thursday and alternate Fridays 7:00 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V. King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Roy King/
Supervisory Patent Examiner, Art
Unit 1793

/JR/

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